

emphasizes the importance of bipedal feeding postures when reconstructing australopithecine behavior. Similarly, Tuttle argues that squatting and bipedal standing during feeding and foraging were strong selective forces, producing the robust heels characteristic of hominids. Hunt's reconstruction of australopithecines as utilizing both arboreal and terrestrial environments is also supported by Foley and Elton's cost-benefit analysis of locomotor energetics with respect to daily time budgets. They conclude that it takes at least 65% of terrestriality per day for bipedalism's advantages to outweigh its costs, which is nevertheless consistent with 35% of arboreal activity. With a meticulous biomechanical model of hip function, Ruff tackles the long-standing debate about the mechanics of bipedal walking in *Australopithecus afarensis* (note: "Lucy's" specimen number is AL 288-1, not AL 228-1). He adds to the ever-growing body of literature concluding that Lucy had a nonmodern-like bipedal gait.

I found the editors' introductions to each section somewhat disappointing. The introductions consist mainly of summaries of each paper, with little commentary offered on the issues or methods. The book would have been strengthened by an editorial overview: what *is* the "current state of the field?" Are our methods effective? What are the most important issues and challenges facing students of primate locomotion today? Where *do* we go from here? In fact, we have come a long way toward fulfilling Kinzey's astute appeals for "more data" on naturalistic behavior, anatomy of joints, ranges of motion, and muscle function, and for postcranial material to elucidate the origin of bipedal-

ism. Not only have we accumulated such data, but as Kinzey predicted, we are indeed "in a better position to understand the adaptive value of the various components of primate locomotor behavior and anatomy" (Kinzey, 1967, p.118).

This book is an important contribution, adding to the small number of volumes focusing exclusively on primate positional behavior and anatomy in a comparative context (e.g., Kinzey, 1967; Jenkins, 1974; Kondo, 1985; Strasser and Dagosto 1988; Jouffroy et al., 1990; Gebo, 1993). It will be of most use to graduate students and professionals interested in primate locomotor adaptations as well as to researchers focusing on mammalian locomotion in general. Given the quantity and exceptionally high quality of papers in this book, the study of primate positional behavior appears to be thriving. In fact, my bias notwithstanding, the time may be ripe for a journal dedicated solely to this topic!

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THE CAMBRIDGE ENCYCLOPEDIA OF HUMAN PALEOPATHOLOGY. By Arthur C. Aufderheide and Conrado Rodríguez-Martín, with a dental chapter by Odin Langsjoen. New York and Cambridge, UK: Cambridge University Press. 1998. 478 pp. ISBN 0-521-55203-6. \$100.00 (cloth).

The publication of this comprehensive reference work provides a benchmark in paleopathology as we approach the 21st century. It encapsulates what has been accomplished and critically chronicles the history of the discipline. Humanities scholars, social and biological scientists, and anyone interested

in the health status of past human populations will find this reference an invaluable research tool. It is a handsome book, with numerous and excellent black-and-white photographs.

Paleopathologists come from a wide spectrum of disciplines: anthropology, archaeology, medicine, history, medical history, dentistry, radiology, epidemiology, parasitology, nutrition, and paleontology, but traditionally the major contributing fields are physical anthropology and medicine. It is a rare and ideal situation when a paleopathologist is both. In the case of the authors of this volume, we come close to the ideal as Aufderheide and Rodríguez-Martín are both clinicians with strong anthropological orientations.

The authors acknowledge the difficulty in selecting the range of topics to be included. They decided upon an anatomical approach, including every disease which causes a pathological change in human tissue and which could be seen without the aid of magnification. Cholera, because of its social and demographic impact, and modern diseases, which have not yet been found archaeologically, are intentional exceptions. Soft-tissue lesions were included because many disease processes change both skeletal and soft tissues, and the number of investigations of mummified remains has increased considerably over the last decade. Emphasis is geared to the probability that a disease will be found in the context of paleopathology. The authors have not simplified the medical terminology because this would imply that paleopathologists do not need to know the appropriate vocabulary.

The paleopathologist sees the end result of disease or trauma, and not the processes leading to the final condition. This reference work endeavors to rectify this static view by including "natural history" sections that describe the development of the lesion so that the reader can imagine the changing tissue events. The authors stress the importance of recognizing the numerous variations the lesions of a disease may possess.

The authors have arranged the text for most subjects into "pathology" and "paleopathology." Under pathology, a discussion of

the defining characteristics of a condition is presented with attendant citations; under paleopathology, examples from the literature are presented. This is a very effective technique for presenting the information. A natural history category is included where appropriate. There are over 1,500 references and more than 2,700 indexed items.

The book is divided into 15 parts, as follows.

Part One, "History of Paleopathology," outlines four phases of the discipline, from the Renaissance to the present.

Part Two, "Pseudopathology," points out postmortem changes that can be mistaken for a disease process.

Part Three, "Traumatic Conditions," illustrates the wide range of cultural activities causing skeletal and soft-tissue trauma, including fracture, dislocation, mutilation, trephination, scalping, deformation, piercing, tattooing, and scarification.

Part Four, "Congenital Anomalies," presents hereditary disorders and those acquired between fertilization and birth.

Part Five, "Circulatory Disorders," is focused on conditions affecting the larger arteries, especially the aorta and those conditions producing primary skeletal changes.

Part Six, "Joint Diseases," highlights degenerative joint disease, both primary and secondary.

Part Seven, "Infectious Diseases," comprises over 30% of the book. It describes more than 40 infections divided into four categories: bacterial, viral, fungal, and parasitic. Subheadings include definition and taxonomy, pathogenesis and natural history, epidemiology, antiquity, and history of diseases. Thoroughly treated are tuberculosis, leprosy, treponematoses, osteomyelitis, typhoid fever (here we learn the origin of the name "Typhoid Mary"), smallpox, and malaria.

Part Eight, "Diseases of the Viscera," focuses on soft tissue, usually mummified.

Part Nine, "Metabolic Diseases," includes rickets and osteomalacia, scurvy, osteoporosis, fluorosis, and toxic metal poisoning, among others.

Part Ten, "Endocrine Disorders," deals with bone and soft-tissue lesions related to

the glands themselves, plus tissue changes caused by too much or too little secreted hormone. Highlights include gigantism, acromegaly, pituitary dwarfism, goiter, and diabetes mellitus.

Part Eleven, "Hematological Disorders," reviews diseases of the red and white blood cells and coagulation disorders. Included are iron-deficiency anemia, porotic hyperostosis and cribra orbitalia, multiple myeloma, leukemia, and hemophilia. Here the authors note the emerging potential for laboratory techniques to identify specific blood disorders in human remains.

Part Twelve, "Skeletal Dysplasias," presents a wide range of skeletal growth disorders. Most are genetic, but a few have been identified at the molecular level. Among the more than 50 disorders described are achondroplasia, osteopetrosis, osteogenesis imperfecta, and fibrodysplasia ossificans progressiva.

Part Thirteen, "Neoplastic Conditions," includes characteristics of benign and malignant tumors of bone, cartilage, fibrous connective tissue, vascular tissue, neural tissue, and tumors of unknown origin.

Part Fourteen, "Diseases of the Dentition" (by Odin Langsjoen), stresses the importance of the dentition to human health and survival. Included are subcategories such as

development, terminology annotation, embryology, tooth eruption, tooth tissues, attrition, temporomandibular joint disease, periodontal disease, dental caries, enamel hypoplasia, cysts, relationship of various diseases to the dentition, and dental mutilation.

Part Fifteen, "Miscellaneous Conditions," includes the definition, epidemiology, etiology, natural history, and paleopathology of Paget's disease, leontiasis ossea, hyperostosis frontalis interna, fibrous dysplasia, neurofibromatosis, and Harris lines, among others.

This book is an essential reference work for libraries, students and researchers of paleopathology, and anyone interested in the health and disease patterns of past populations. It is a milestone in the state of our knowledge about the antiquity, history, and epidemiology of disease. It will facilitate synthesis with other aspects of human history. As paleopathology is multidisciplinary, teamwork is essential in any complex project. And so it is with this book: the authors were blessed with a dedicated and efficient support team to bring this 3-year project to a very successful conclusion.

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BOOKS RECEIVED

Bindernagel JA (1998) *North America's Great Ape: The Sasquatch*. Courtenay, British Columbia, Canada: Beachcomber Books. 270 pp. \$25.00 (paper).

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